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09/930,957	08/17/2001	Koichi Ui	900-398	2405

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EXAMINER

ZERVIGON, RUDY

ART UNIT

PAPER NUMBER

1763

DATE MAILED: 06/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/930,957

Applicant(s)

UI ET AL.

Examiner

Rudy Zervigon

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 6-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/553,148.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The information disclosure statement filed as paper 7 is appended because Applicant has included the PTO-892 of the parent case to cite USPat. 4,338,482 in lieu of citing USPat. 4,338,482 on Applicant's PTO-1449. The Examiner has written in the USPat. 4,338,482 citation in Applicant's PTO-1449.

### ***Drawings***

1. Figures 9 and 11 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The disclosure is objected to because of the following informalities: The specification identifies the physical dimension for sheet resistance as " $\Omega/\bullet$ ". The dimension should be changed to " $\Omega$ ".

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 6 is rejected under 35 U.S.C. 102(b) as being anticipated by Oda et al (USPat. 5,252,132). Oda teaches film deposition apparatus (Figures 10, 11; column 8, lines 1-28) including:

- i. Heating means - Support for this portion of claim 6 is found in lines 3-4, page 12. Specifically, the specification teaches “any known methods can be used”. Oda teaches a heater (12). As such, Oda teaches an equivalent apparatus that performs the function of heating a substrate (2). As a result, Oda’s prior art element 12 for heating performs the identical function of heating the substrate in substantially the same way, and produces substantially the same results as the corresponding elements disclosed in the specification (MPEP 2183).
- ii. Deposition heads (“nozzles”, 37) for discharging plural gases independently – Specifically, Oda teaches nozzles 37 where “each of which has at least one reaction gas nozzle port 37a for ejection of a reaction gas 38. The rates of supply of the reaction gas to the respective reaction gas supply nozzles 37 are independently controlled by means of a mass flow controller...” as such, each of his deposition heads is capable of flow control for plural gases.
- iii. Oda further teaches that a distance from the bottom ends of any of the discharge ports (37a) of the dispersion heads (any of the plural nozzles 37) to a surface of the substrate (2) is variable and controllable (column 8, lines 17-28). Inclusive, as shown in Figure 10, Oda’s dispersion heads are staggered vertically thus meeting claim 6’s limitation where the

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distance of a bottom end of one discharge port to the surface of the substrate is greater than the distance of a bottom end of one discharge port to the surface of the substrate for the adjacent dispersion head.

- iv. Regarding the gas identities of claim 6 – It is well established that apparatus claims must be structurally distinguished from the prior art (In re Danley, 120 USPQ 528, 531 (CCPA 1959). "Apparatus claims cover what a device is, not what a device does ." (emphasis in original) Hewlett - Packard Co . v. Bausch & Lomb Inc ., 15 USPQ2d 1525, 1528 (Fed. Cir. 1990), MPEP – 2114). Further, a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oda et al (USPat. 5,252,132). Oda is discussed above. Oda does not teach the distance/partitioned circumference from the bottom ends of his discharge ports to the surface of the substrate and the distance/partitioned circumference from the bottom end of the discharge port of another discharge port to the surface of the silicon substrate is 0.1 to 30 mm.

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the location of Oda's discharge ports relative to each other and to the substrate.

Motivation to optimize the location of Oda's discharge ports relative to each other and to the substrate is to control the concentration of reactant gases and to improve uniformity and thickness of the deposited film as taught by Oda (column 8, lines 17-28).

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oda et al (USPat. 5,252,132) in view of Bartholomew et al (USPat. 5,136,975). Oda is discussed above. Oda does not teach conveyor means. Bartholomew teaches a continuous atmospheric pressure CVD device (Figure 4; column 7, lines 37-69). Bartholomew further teaches:

- i. conveyor means - Support for this portion of claim 9 is found in lines 26-30, page 12. Specifically, the specification teaches "...conveyor means is preferably constituted in such a fashion as to be capable of conveying the substrate from a position immediately below the discharge port of the discharge head for the dopant element compound through a position immediately below the discharge port of the dispersion head for the titanium compound in a gaseous state to the portion immediately below the discharge port for the atmospheric gas.". Bartholomew teaches conveyor means (24) capable of conveying the substrate from a position immediately below a discharge port (96; Figure 4) of a discharge head (36; Figure 4; column 3, lines 50-65) through an adjacent position. As such, Bartholomew teaches an equivalent apparatus that performs the function of conveying the substrate. As a result, Bartholomew's prior art element 24 for conveying the substrate perform the identical function of conveying the substrate in substantially the same way, and produces

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substantially the same results as the corresponding elements disclosed in the specification (MPEP 2183).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Bartholomew's conveyor to Oda's film deposition apparatus.

Motivation to add Bartholomew's conveyor to Oda's film deposition apparatus is to increase throughput of Oda's semiconductor production as taught by Bartholomew.

### *Conclusion*

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USPat. 4,834,020; 5,122,391; 5,136,975; 5,302,209; 5,431,738; 5,487,784; 5,849,088; 6,022,414; 4,980,204.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (703) 305-1351. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official after final fax phone number for the 1763 art unit is (703) 872-9311. The official before final fax phone number for the 1763 art unit is (703) 872-9310. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (703) 308-0661. If the examiner can not be reached please contact the examiner's supervisor, Gregory L. Mills, at (703) 308-1633.

*Rudy Zervigon*  
6/12/3